

WHAT IS CLAIMED IS:

1. A method of forming a joint between a first body and a second body comprising the steps of:

applying a slurry to an end of a first body made of silicon carbide;

placing the end of the first body in a collar;

applying the slurry to an end of the second body made of silicon carbide;

placing the end of the second body in the collar; and

heating the first body and the second body with a slurry in the collar about them which forms a joint.

2. A method as described in Claim 1 wherein the applying the slurry step includes the step of applying the slurry of silicon carbide powder having a particle size between 20 nanometers and 35 microns.

3. A method as described in Claim 2 wherein the applying the slurry step includes the step of applying the slurry of silicon carbide powder having at least two distinct particle sizes.

4. A method as described in Claim 3 wherein the applying to the first body step includes the step of applying the slurry to the outer wall of the first body and inner wall of the collar in their respective regions to be joined.

5. A method as described in Claim 4 wherein the heating step includes the steps of using a standoff to keep the first body in a desired position in the collar, and heating the collar and the first body to 1400 degrees centigrade.

6. A method as described in Claim 5 wherein the heating the first body step includes the step of placing the first body and collar with the standoff in a furnace, putting the furnace under a vacuum and backfilling the furnace with an inert gas.

7. A method as described in Claim 6 wherein the applying to the second body step includes the step of applying the slurry to the outer wall of the second body and inner wall of the collar in their respective regions to be joined.

8. A method as described in Claim 7 wherein the heating step includes the steps of placing the second body, collar and first body in the furnace, putting the furnace under a vacuum and back filling the furnace with an inert gas.

9. A method of forming a joint between a first body and a second body comprising the steps of:

applying a slurry to a tapered area of a first body made of silicon carbide;

applying the slurry to a tapered area of a second body made of silicon carbide;

aligning the tapered area of the first body with the tapered area of the second body so they are in contact; and

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heating the first body and the second body with the slurry which forms a joint.